NTT CSI STRATEGY RECOMMENDATIONS MEETING

May 19, 1988

AGENDA

9:30	Introduction
9:45	Multivendor Integration Technology
10:15	Evaluation of NTT as CSI Vendor in U.S. Market
11:00	CSI Strategy Recommendations for NTT
12:00	Conclusion

INTRODUCTION

NTT STUDY CHARACTERISTICS

Our Experience:

- Very Challenging Project
- CSI Has Many "Faces"
- Language/Terminology Not Fully Established
- Some Patterns Emerging
- Dynamic Changes Occurring

Our Commitment:

- INPUT Is Honored to Advise NTT
- Assembled Strong Research Team
- High-Quality Service
- Responsive to NTT's Needs

NTT STUDY OBJECTIVES

- Provide Ten-Year CSI Market Forecast
- Identify Strengths, Weaknesses, and Strategies of Major CSI Vendors
- Recommend a NTT Strategy for the CSI Business

PROJECT SCOPE

- Analysis of 11 Major Vendors
- Commercial, Not Government, Sector
- U.S. Market Only

DELIVERABLES

- Written report
- Presentation

IF POSSIBLE . . .

- Specialized CSI Vendors
- Multivendor Integration Technology
- Competitor's Detailed CSI Proposal with Pricing, etc.

INPUT RESEARCH TEAM

Project Manager:	Dennis White Director, Custom Research
Four Senior Consultants	
Five Research Analysts	
Project Locations:	Mountain View, CA Parsippany, NJ
Executive Review:	Dennis Wayson Vice President, Research
	Peter Cunningham President

R. DENNIS WAYSON
Vice President, Research
INPUT

CAPABILITIES:

- Member of INPUT's senior management
- Directs all U.S.-based research
- Twenty years of DP planning and management
- System development, operations management, technology planning, and systems planning
- Worldwide user-based systems responsibility

BACKGROUND:

- Senior Vice President - Professional Support Systems for Bank of America
- Director of Information Systems Development and Technology for Sun Company
- Guest speaker for IBM and MIT
- Board member for MIT Center for Information Systems Research

EDUCATION:

- MS Operations Research & Computer Science, Cornell
- BS Engineering, Lehigh University

DENNIS WHITE
Director, Custom Research
INPUT

CAPABILITIES:

- Nineteen years experience
- Marketing and business strategy development, mergers and acquisitions
- Twelve vertical markets
- Venture capital startups, turnaround situations, medium-size public companies, and a Fortune 100 company

BACKGROUND:

- Director of Marketing for Boole & Babbage, Inc.
- Director of Marketing for Syntelligence, Inc.
- Vice President Marketing for Tymshare INSG
- Vice President Marketing for Tymnet
- Manager Strategic Planning for Tymshare
- Manager Business Planning for McDonnell Douglas Automation

EDUCATION:

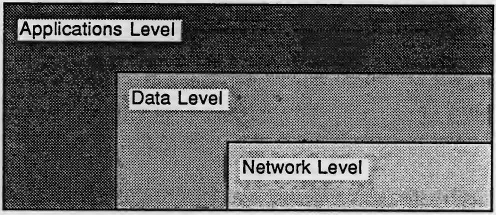
- BS Engineering, Northwestern University
- MBA, Washington University (St. Louis)

MULTI-VENDOR INTEGRATION TECHNOLOGIES

INTRODUCTION: MULTI-VENDOR INTEGRATION TECHNOLOGIES

- Hierarchy Of Integration Products
- Systems Integrator Capabilities
- Multi-Vendor Integration Products & Tools
- The Evolution of Multi-Vendor Integration Tools
- Conclusions

HIERARCHY OF INTEGRATION TECHNOLOGIES



Applications Level

Data Level

Network Level

- Different Products At Each Level
- Software & Methodology At Highest Level
- Hardware & Software At The Lowest

EXAMPLES OF PRODUCTS AND STANDARDS

APPLICATIONS LEVEL

- Foundation - Arthur Andersen
- Concept 90 - Deloitte Haskins + Sells
- CIM Products

DATA INTEGRATION LEVEL

- Oracle, Sybase (Distributed DBMS)
- Data Dictionary/Definition Products
- Emerging SQL Standards

NETWORK INTEGRATION LEVEL

- Non-IBM SNA Connectivity Products
- LAN and WAN Bridging Technologies
- Protocol Convertors

VENDOR CAPABILITIES

PROFESSIONAL SERVICE COMPANIES

- Focused On Methodology
- Developing Applications Expertise Across Multiple Hardware Vendors

SOFTWARE/HARDWARE VENDORS

- Focused On Infrastructure
- Expertise In Network-Based Solutions
- Starting To Develop Vertical Applications Expertise

SAMPLE CSI VENDOR INTEGRATION TECHNOLOGY LINKS

CSI VENDOR	ALLIANCE/LINK	INTEGRATION CAPABILITY
IBM	Network Equipment Tech. Policy Mgt. Systems Hogan Systems	T1 Multiplexors Insurance Applications Software Banking Applications Software
DEC	Apple Network Innovations	Micro-Computer Hardware/Software Micro Software Link (Cooperative Processing)
Arthur Andersen	IBM MSA, McCormack & Dodge	IS Hardware Financial Software Internally Developed CASE Product—FOUNDATION
EDS	Tandem AT&T Decision Systems	IS Hardware/Software/Communications Communications Systems Software
SHL Systemshouse	Wang Northern Telecom Oracle	IS Hardware, Communications Communications Systems Software/Database
AT&T	Sun Microsystems	Network Hardware, NFS (Network File System)
Martin Marietta	Hoskyns (UK) Hewlett-Packard	Applications Software Applications Software
UNISYS	Dravo Auto. Sciences Industrial Networking Timeplex	Software Integration/Manufacturing MAP Protocol Communications Hardware/Software
CTG	Relational Technology TransForm Logic	Systems Software/Database CASE Tool

MULTI-VENDOR INTEGRATION
SAMPLE PRODUCTS/TOOLS
GATEWAYS/BRIDGES

VENDOR	PRODUCT	CONNECTIVITY
Advanced Computer Comm.	ACS 420 Ethernet	Ethernet to X.25
Banyon Systems	BNS Network Server	Interconnect Various LANs
Bridge Communications	GS/3	Any XNS to TCP/IP
Communications Solutions, Inc.	Access SNA/APPC	Any Workstation to SNA
Digital Communications	IrmaLAN DFT	Any IBM-Compatible BIOS To SNA
Novell	NETWARE	LAN Network To SNA
ORION Network Systems	SNA 6.2 Release 3 Gateway	Any Workstation To SNA
Rabbit Software	RABBITGATE	IBM NETBIOS to SNA
3Com	3+/Asynchronous	3COM, or IBM Token Ring To Any Asynch. Host
Ungerman-Bass	NET/One X.25	U-B 802.3 NET/One to X.25
Wang Laboratories	SNA Networks	WANG VS Mini to SNA

MULTI-VENDOR INTEGRATION
SAMPLE PRODUCTS/TOOLS
MICRO TO HOST

VENDOR	PRODUCT	TYPE	CONNECTIVITY
Communications Research Group	BLAST	Cooperative Processing	All Mini Computers Mainframes, Asynch
Communications Solutions	ACCESS/SNA	Cooperative Processing	Any IBM 370 Architecture
Digital Communications	IRMA2	COAX, Terminal Emulator	IBM 3270
Lee Data Corp.	Series 8000/ Execulink	Protocol Converter	IBM 3270
Micom Systems	MICOM Box	Protocol Converter	IBM 3270
Novell, Inc.	PCOX/COAX	COAX Terminal Emulator	IBM 3270
TangramSystems Corp.	ARBITER	Cooperative Processing	Any IBM 370 Architecture
Walker Richer & Quinn	Reflection 2 Plus	Terminal Emulator	Any DEC and UNIX

MULTI-VENDOR INTEGRATION
SAMPLE PRODUCTS/TOOLS
ETHERNET LANS

VENDOR	PRODUCT	TYPE
AT&T	STARLAN	Unshielded Twisted Pair
Banyan Systems	CNS	Coax, Thin Coax, Unshielded Twisted Pair
Bridge Communications	PCS/1	Coax, Unshielded Twisted Pair, Fiber Optics
Novell, Inc.	NE1000	Coax, Thin Coax
SynOptics	LattisNet	Unshielded Twisted Pair
Sytek, Inc.	LocalNet 4000	Coax, Thin Coax
3Com Corporation	3S-400	Coax, Unshielded Twisted Pair
Ungerman-Bass	NET/ONE	Coax, Unshielded Twisted Pair, Fiber Optic

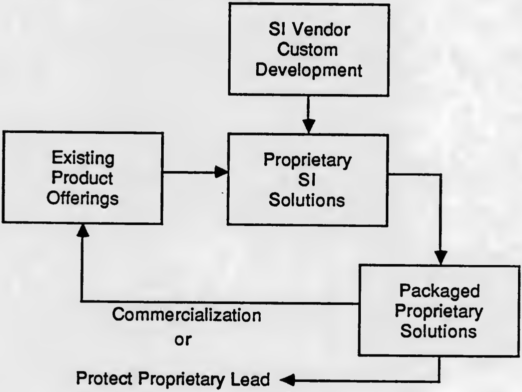
MULTI-VENDOR INTEGRATION
SAMPLE PRODUCTS/TOOLS
T1 MULTIPLEXORS

VENDOR	PRODUCT	APPLICATION
BBN Communications	T-500 CSU	Network, Dynamic Routing
CODEX Corporation	6290	Point-to-Point And Network, Dynamic Routing
Digital Communications	9000 Series Netlink 7000	Network, Dynamic Routing Point-to-Point, Table Routing
General Datacomm	MegaMux MegaSwitch	Point-to-Point, Table Routing Point-to-Point And Network, Dynamic Routing
Network Equipment Technologies (NET)	IDNX 20, 70	Point-to-Point And Network, Dynamic Routing
Timeplex, Inc.	Link/100	Point-to-Point And Network, Dynamic Routing

TRENDS IN MULTI-VENDOR INTEGRATION

- No Vendor Has A Complete Tool Set To Accomplish SI At All Three Levels
- Most Vendors Focusing on Particular Niches Or Levels
- Expertise and Bridging Technologies Gained Through Alliances
- Each New Project Benefits From Previous Experience

THE EVOLUTION OF SYSTEMS INTEGRATION TECHNOLOGIES


SI Vendor Custom Development
Existing Product Offerings
Proprietary SI Solutions
Packaged Proprietary Solutions
Commercialization
or
Protect Proprietary Lead

NTT EVALUATION

EVALUATION OF NTT AS A CSI VENDOR IN THE U.S. MARKET

Discussion Outline:

- Introduction
- Assumed NTT Corporate Objectives
- CSI Fit with NTT Objectives
- Evaluation of NTTas a CSI Vendor
- Trade Friction Issues
- Overall NTT CSI Strengths and Weaknesses
- Evaluation Conclusions

INTRODUCTION TO NTT CSI EVALUATION

- Difficult Task—Subjective Judgments
- Apologize in Advance, If We have Misunderstood Some Things
- If in Error, Please Correct Us
- When in Doubt, We have Tried to Under-Estimate, Rather than Over-Estimate NTT Strengths
- Assume Audience is Familiar with INPUT's Analysis of:
  - CSI Market
  - Competitive Environment

ASSUMED NTT CORPORATE OBJECTIVES

1. Strengthen Competitive Capabilities in the Japanese Market
2. Become a Global Network Integrator
3. Complement Proven Technology Strength wtih Enhanced Ability to Address Multivendor Technology Requirements
4. Seek Higher Margin Communication-Related Services (Higher Value Added)
5. Develop More International Business Relationships
6. Avoid Creating Trade Fiction Problems

FURTHER ASSUMPTIONS . . .

1. The Japanese (and Worldwide?) ISDN Market May Not Develop as Rapidly as Expected

2. NTT Would Benefit from a Busines Objective More Actionable Today for:

    - Initiating and Developing Meaningful Business Relationships
    - Establishing a Significant Customer Base and Credibility
    - Expanding Global Influence
    - Preparing for Major Long-Term High Value Added ISDN-Based Services

ROLE OF CSI IN SERVING NTT BUSINESS OBJECTIVE

Assumed NTT Goals	CSI Business Fit		
	High	Medium	Low
1. Strengthen Japanese Market Competitiveness		X	
2. Become Global Network Integrator	X		
3. Develop Multivendor Technology Skills	X		
4. Seek Higher Margin (Value Added) Services	X		
5. Expand International Business Relationships	X		
6. Pursue Market Opportunity That is Real Today	X		
7. Avoid Creating Trade Friction	Depends on How NTT Proceeds		

CSI CAPABILITY DEFINITIONS

- Consulting Services – Project Front-End Feasibility Studies, and/or Hardware, Software, Network Technology Selection and Trade Off Studies.
- Design/Integration – System Design, Installation, and Testing.
- Project Management – Overall Responsibility for Project Planning, Implementation Vendor and User Interface.
- Information Systems Hardware – Processing CPUs, Storage and Related Peripherals Used in an SI Project (Mainframes, Minis, Micros).
- Communications Hardware – Communications Devices, e.g., Controllers, Switches, Multiplexers, Network Control Systems, PBXs.
- Software Development – Custom Software Design, Coding, and Testing.
- Package Application Software – Vendor-Provided, Off-the-Shelf Generic Software Solution to a System Requirement.
- Education, Training, & Documentation – Training Given to the User to Make Some Combination of the Use, Operation, and Maintenance of a System Possible by That User.
- Network Management – The Ongoing Operation, Monitoring, and Control of a Communications Network as a Facility Management Service.
- Service & Repair – Services That Fix Operational Problems in Hardware, Software, and any Special Facilities/Equipment.
- Other – Specialized Systems Required by, and Unique to, the SI Project Application. For Example, an Energy Management System for a Power Utility Will Have Special Controls and Switches (Using Computer Hardware & Software) Provided by Suppliers Not Normally Associated with the Data Processing Business.

NTT INTERNAL CSI CAPABILITIES EVALUATION

CSI Capability	Strengths	Weaknesses	Strengths Transferable
1. Consulting	• Telecom, Networking, Selected Application Areas (e.g. Banking)	• Incomplete Skills to Address Total Consulting Requirement (Hardware, Software, Comm.) • Lacking IBM & DEC Expertise	Yes
2. Design/ Integration	• Network Area Only	• Limited Multivendor Experience • Missing Skills in Application and Data —Level Integration	Yes
3. Project Management	• Experience with Large Complex Projects	• Limited Multivendor Project Management Experience (Problem Resolution, Risk Management)	Yes
4. IS Hardware	• Experience with General Purpose Application Processors (Especially Online Systems)	• Need to Learn IBM & DEC	Yes
5. Communications Hardware	• Broad Product Line	• Different Standards? • Trade Friction Aggravated by Importing Hardware to U.S.	No

NTT INTERNAL CSI CAPABILITIES EVALUATION

CSI Capability	Strengths	Weaknesses	Strengths Transferable
6. Software Development	• DRESS Super Network Services (Non-Consumer) for Intercompany Transactions (EDI) in Manufacturing, Distribution & Finance • Large Data Bases—News Retrieval, Company Financial Data • Public Admin. Systems—Social Insurance & Medical Emergency	• Custom Development Skills and Resources Limited in Application to CSI Market: - Appear to be "Build from Scratch" Rather than "Piece Together" Integration Skills - No IBM or DEC Experience Base	Some
7. Packaged Application Software	• None Apparent	• Doesn't Run in IBM Environment	No
8. Packaged System Software	• None Apparent	• Doesn't Run in IBM Environment	No
9. Education, Training & Documentation	• Highly Developed Process	• Appear Internally-Oriented Rather than Customer-Oriented	Yes
10. Network Management	• Highly Developed Skills & Experience	• Expertise May be Limited to NTT Specific Technology...?	Maybe
11. Service & Repair	• Extensive Capabilities in Servicing Large Networks	• Limited Experience in a Multivendor Environment	No

OTHER CSI SUCCESS FACTORS

Success Factor	NTT Strength	NTT Weakness	Strengths Transferable to U.S.
1. Financial Capacity	• Supports Serious, High Quality CSI Investments • Capacity for Large CSI Projects	• Possible Trade Friction Problems	Yes
2. Management Expertise	• Knowledgeable in Key Areas of Telecomm. and Data Comm. Applications	• Little U.S. Market and Multivendor Experience • Culture May be Engineering Dominant—"NIH" Factor Doesn't Fit CSI Well • More Government than Commercial Project Experience	Some
3. External Alliances	• Relationships Exist with IBM, ATT, Data General • Bargaining Chips: - Cash - NTT Technology - Entreé to Japanese Market (?)	• None of These Relationships Likely to Significantly Enhance CSI Success	Yes
4. Selling Skills	• Long, Slow Relationship Building Requirement Supported by NTT Culture	• Monopolies Don't Breed Competitive Instincts Well	Yes

OTHER CSI SUCCESS FACTORS

Success Factor	NTT Strength	NTT Weakness	Strengths Transferable U.S.
5. Inplace Customer Relationships	• NTT has Opportunity to be Proactive Rather than Opportunistic	• No U.S. Customer Base to Leverage	—
6. External Image (As Perceived by Americans)	• Quality • Technology Oriented	• Likely Reactions: - "What is NTT Doing in the CSI Market?" - "Why are they Here?" • Questionable Credibility	Yes
7. Organizational Vehicle to Pursue CSI Business in U.S.	• NTTA can Facilitate Creation of U.S. CSI Vehicle	• NTT Can't Participate Without a U.S. CSI Vehicle - Perform Business vs. Watch Others Do It - Ability to Form Alliances	In U.S. Already
8. Market Penetration Timing	• Learn by Others Past Mistakes & Successes	• 2 to 3 Year Time Window for Acheiving Critical Mass in CSI Business	—

NTT INTEGRATOR VS. SUBCONTRACTOR ROLE

CSI Vendors	Partners (Subcontractors)					
	Hardware Mfgrs.	Prof. Svcs.	Comm. Companies	Aerospace	Software Cos.	NTT CSI Vehicle
Hardware Manufacturers		X	O		X	?
Professional Services	X		O		X	?
Communications Companies	X	X		O	O	?
Aerospace	X		O		O	?
Big "8"	X				O	?
NTT CSI Vehicle	X	X	O		X	

Interpretation Key:

- For CSI Vendors, Read Horizontally: "What Partners do I Need?"
- For Partners, Read Vertically: "Who Needs Me?"

Legend:

X= Most Important and Frequent Alliances

O = Occassional Alliances

NTT CSI INTEGRATOR ROLE ANALYSIS

Pros:

1. More Contol Over the Business ("What Partners do I Need?)
2. Full Learning Experience (Project Management, Multivendor Integration)
3. Maximize NTT Financial Strength (Capacity for Big Deals)

Cons:

1. Must Gain Direct Customer Relationships
2. Requires Aggressive Moves in U.S. Market (Acquisition or Joint Ventures)
3. More Complex Alliance Building Effort Required
4. More Aggressive (Counter to NTT Culture?)

Neutral:

1. Must Select Core Skill Area to Build Around

NTT CSI SUBCONTRATOR ROLE ANALYSIS

Pros:

1. Could Evolve into CSI Integrator
2. Less Aggressive (Better Fit with NTT Culture)
3. Leverage Others Customer Contacts (e.g. Hardware Vendor)

Cons:

1. Less Control Over the Business ("Who Needs Me?")
2. Doesn't Leverage NTT Financial Capacity for Big Deals
3. Doesn't Provide Full Learning Experience (Project Management, Multivendor Integration)
4. Still Requires Major Moves in Market (Acquisition or Joint Venture)
5. Potential for Distraction by Non-CSI Business
6. When Ready to Emerge as Full CSI Integrator, Relationship Choices May be Severly Limited
7. Doesn't Create Direct Customer Relationships

Neutral:

1. Must Select One Skill Area to Specialize in

TRADE FRICTION ISSUES
(From American Viewpoint)

1. Form versus Substance
2. Real Issues from the American Side
3. Likely American Reaction to Potential NTT CSI Penetration Strategies
4. NTT's Biggest Challenge

TRADE FRICTION PERSPECTIVES

FORM:

1. Highly Emotional Content
2. Driven by Politicians & News Media
3. Public Demonstrations
    - Japanese Agri-Workers (Beef Protests)
    - Americans Destroying Toshiba Equipment on U.S. Capitol Steps

SUBSTANCE:

1. Fairness and "Balance" in Economic Relationships
2. Support in Solving Mutual Economic Problems
3. Mature Understanding of a Changing World Economy

AMERICAN REACTION TO JAPANESE ECONOMIC STRENGTH

Good News:

1. Respect (Not Jealousy)
2. Thank You (for Waking Us Up!)

Bad News:

1. Just Now Learning It Is a World Economy—Not an American Economy Around Which the World Revolves . . .
2. No One Can Always Be the Best At Everything

TRADE FRICTION

WHAT CAUSES IT: (Imports)

1. Activity That Increases U.S. Balance of Payments Problem
    - Barriers to U.S. Product Sales in Japan
    - "Unfair" Marketing of Japanese Products in the U.S.

WHAT DOESN'T CAUSE IT: (Investment)

1. Japanese Investment in America that:
    - Produces Needed Capital and Technology
    - Creates American Jobs
    - Produces Quality Products/Services
    - Helps the American Economy
2. The Success Stories of these Investments
3. While Other U.S. Companies are Moving Plants to Europe, the Japanese are Building Plants and Jobs in the U.S.!

THE NEW DRUG VIGILANTES: HELP OR HINDRANCE?

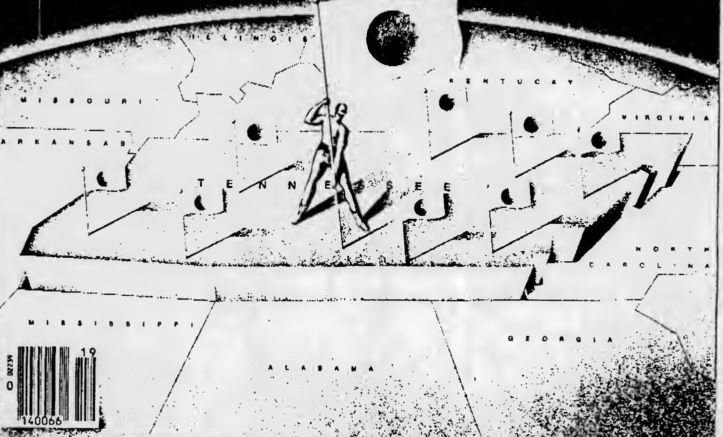
U.S.News & WORLD REPORT

MAY 9, 1988

$1.95

JAPAN MOVES IN

TOKYO INC.'s BOLD THRUST INTO THE AMERICAN HEARTLAND



E-13

William "Junior" Perry

Takehiko "Mo" Mochizuki

HOW JAPAN IS WINNING DIXIE

THE TENNESSEE STORY

F- 14

SOME FACTS AND EXAMPLES

1. Japan's $31 Billion Investment in the U.S. is
    - 0.6% of America's $4.7 Trillion Economy
    - Less than Half of British Investment in the U.S.
    - Slightly More Than Half of Dutch Investment in the U.S.
2. Most Japanese-U.S. Investment Focused on:
    - Stocks, Bonds, Government Securities
    - Real Estate
    - Auto Imports
    - Major Acquistions
        - Firestone by Bridgestone ($3.8 Billion)
        - CBS Records by Sony
3. CSI Market is not Very Susceptible to Trade Friction Concern
    - More Services Content than Products
    - Highly Fragmented, Competitive Market
    - Not Big Enough to Cause Worry
    - INPUT Doesn't See a Threat

IN THIS CONTEXT . . .

Most Aggressive NTT Acquistion Based Penetration of U.S. CSI Market Would

- Hardly be Noticed in the U.S. Outside the Computer Industry
- More Likely Raise Curiousity Questions
  - "Isn't that Strange . . . ?"
  - "Why is NTT Doing that?"
- Could be Positioned to Have Important "American Benefits"
  - Creation of Jobs
  - Possibility of Exporting CSI Technology and Product Overseas
  - Commitment to Minimize Product Imports
- Achieved at a Small Fraction of Japan's $5.9 Billion 1987 U.S. Investment

NTT'S BIGGEST CHALLENGE REGARDING TRADE FRICTION ISSUES

1. Lack of Experience (Comfort) in U.S. Company Acquisitions and Joint Ventures
2. Accurate Perception of Trade Friction Issue from American Side
3. Dealings with Japanese Government
   - Educating Them
   - Gaining Approvals

NTT CSI EVALUATION SUMMARY

1. CSI Business Supports NTT Corporate Objectives at the Highest Strategic Level
2. Strengths Exist in All Skill Areas but "Packaged Software"
3. Most Strengths can be Transfered to the U.S. CSI Market:
    - At Management/Planning/Oversight Level
    - Not at the Performing/Doing Level
4. Critical Weaknesses Exist:
    - Lack of Multivendor Environment Experience
    - Insufficient Knowledge of IBM and DEC Environments (Especially in Software Skills)
    - Competitve Selling Skills in a Commercial (Private) Environment
    - No U.S. Customer Relationships (Base)
    - No U.S. CSI Organizational Vehicle for Performing CSI Business

KEY NTT OPPORTUNITIES:

1. CSI market is Real and Ready Now
2. Only IBM has a Major Position
3. NTT has the Financial Strength to be a Major Player
4. U.S. Company $ Valuations are Favorable

KEY NTT THREATS:

1. CSI Success Requirements May Not Fit NTT Culture
    - Need to Move Aggressively (Window of Opportunity)
    - Need to Resolve any Trade Friction Concerns

CSI STRATEGY RECOMMENDATIONS

NTT CSI STRATEGY RECOMMENDATIONS

A. General Recommendations
B. Specific Recommendations
C. Implementation Recommendations
D. How INPUT Can Assist NTT

A. GENERAL RECOMMENDATIONS

1. Implications of the "Custom" Nature of CSI

    - The Market is Established, But the Implementation Processes are Not—They are Being Created
    - CSI Must Be Learned by Doing, not Watching
    - Successful Firms Will Participate in the Creation . . .
    - Technology Licensing is too Much Like Basic Research—Long Time to Get Benefits
    - CSI More Like Applied Technology—Action is Required
    - When CSI Solutions Become More Packaged/ Productized, the Leading Vendors Will Become "Untouchable" Due to Size and, Value
    - Recommendation: Serious CSI Pursuit Requires Active Participation Through Acquisition/Joint Ventures

GENERAL RECOMMENDATIONS

2. In Study Phase, Start "Openminded" and Become "Focused"

3. In Implementation, Grow from Strength (Network Integration) and Build Outward

4. Insist on Quality (It Will be Expected)
    - People
    - Company Relationships
    - Products/Services

5. Begin as a CSI Subcontractor and Evolve into Prime Integrator Role (Unless Opportunities Create a More Direct Path)

6. Differentiate the NTT CSI Offering via Unique:
    - Technology
    - Target Market Selection
    - Contracting Method
    - Implementation Approach

GENERAL RECOMMENDATIONS

7. One Large Relationship (Acquisition or Joint Venture) More Important Than Many Small Ones
   - Get U.S. CSI Vehicle Established First
   - Only Way to Address Critical Weaknesses
   - Use it to Pursue Other Relationships
   - Technology Licensing Won't Accomplish NTT Objectives

8. Keep NTT Name in Background
   - Adapt Name of Acquired Company or Joint Venture (Like Amdahl/Fujitsu)
   - Eventually Create New Name with Global Rather Than National Meaning

9. Support the Use of International Technology Standards Rather Than Attempt Proprietary Standards

10. Multivendor Integration Technology
    - Develop Through Alliances, Internal Development, Acquisitions
    - Decide When You Get There to Commercialize or Protect as Proprietary

B. SPECIFIC RECOMMENDATIONS

1. Acheive U.S. CSI Vehicle (As Soon As Is Comfortable) to Gain Critical Advantages:
    - IBM and DEC Knowledge
    - Multivendor Environment Experience
    - Competitive Selling Skills
    - Customer Relationships
    - Built-in Alliances (Especially Hardware)
    - Magnet for Attracting New Alliances

2. Evaluate Joint Venture Like Honeywell (42%), Bull (42%), NEC (15%)
    - The Focus is on Networking, DBMS, Transaction Processing
    - $1.9 Billion Revenue
    - 10,000 Customers
    - 20,500 Employees
    - Monitor Their Progress/Success

SPECIFIC RECOMMENDATIONS

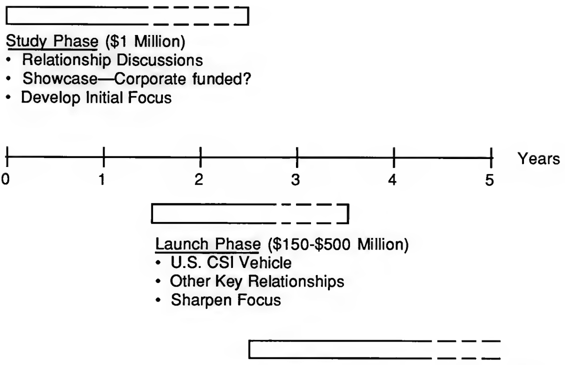
3. NTT Niche Market Targets:
   - Global Integrated Voice/Data/Image Networks with Application Orientation, e.g.
     - Intercompany Transactions (EDI)
     - Banking and Finance
     - Transportation
     - Distribution
     - News/Information Distribution
     - Language Translation
   - Big $ Projects
   - Multi-National Organizations (Companies & Non-Profits)

4. Avoid CPU Intensive Application Targets—IBM and DEC Will Control These

5. Avoid Computer Integrated Manufacturing (CIM)—Too Crowded

6. Take Advantage of NTT Presence in Silicon Valley Regarding Alliance Opportunities in Emerging New Technologies (Such as CASE Tools, Telecommunications Products)

NTT CSI PENETRATION MODEL



Study Phase ($1 Million)
- Relationship Discussions
- Showcase—Corporate funded?
- Develop Initial Focus

Launch Phase ($150-$500 Million)
- U.S. CSI Vehicle
- Other Key Relationships
- Sharpen Focus

Development Phase ($50-$100 Million)
Investment in
- People
- Technology
- Marketing

Total Five Year Investment: $200-600 Million

Result:
- Leading U.S. CSI Vendor
- Base for Global Application Specific Integrated Network Business
- This, or Something Better . .

C. IMPLEMENTATION RECOMMENDATIONS

1. CSI is too Dynamic to Methodically Plan
    - Prepare for Future
    - Let NTT Strategy Evolve
    - Take One Step at a Time
    - Be Opportunistic

2. Initiate Discussions with Prospective CSI Partners Around "Soft Issues":
    - What is Happening in CSI?
    - What NTT has to Offer a U.S. Partner
    - How Might NTT Participate?
    - What Might We Do Together?
    - Who Else Should We Talk With?

    See What They Say and Propose

    (INPUT Can Arrange These Meetings)

3. Let These Discussions and Evolving Relationships Shape NTT Strategy

4. Develop a U.S. "Showcase" for NTT Expertise—Invite People to Visit

ASSESSMENT OF POTENTIAL NTT RELATIONSHIPS WITH CSI VENDORS

- From NTT U.S. Market Penetration Viewpoint

- and -

- What Benefit NTT Might Offer the CSI Vendor Partner (in the U.S., Japan, or Worldwide)

IBM

Pro

1. IBM is a powerful ally to have, but . . .

Con

1. IBM has history of either controlling or doing nothing in relationships
2. IBM would not support building NTT customer relationships
3. IBM is unlikely to feel it needs NTT help in any area

Recommendation

Maintain existing cordial relationship and don't expect much . . .
unless NTT brings IBM sales opportunties as a member of its
CSI Program. (Not practical without a "U.S. vehicle" for NTT.)

COMPUTER SCIENCES CORPORATION (CSC)

Pro

1. Strong company
2. Good people/culture fit
3. Beginning new CSI thrust—looking for key alliances
4. Interested in talking with NTT

Con

1. Relationship potential limited without "U.S. CSI vehicle"
2. CSC Success in Commercial SI is Not Yet Established

Recommendation

Initiate exploratory discussions

ARTHUR ANDERSEN & COMPANY (AA & CO.)

Pro	Con
1. AA & Co. has strong international presence at high management levels—might be interested in an international telecom partner?	1. AA & Co. is unlikely to feel it needs NTT in the U.S. CSI market
2. Could NTT do something for AA & Co. in Japan?	2. Partnership ownership structure of AA & Co. doesn't fit joint ventures and acquistion activity well

Recommendation

Hold exploratory meeting with AA & Co. to get feel for the "Big 8" environment and prepare for pursuit of other Big 8 alliance targets

AMERICAN TELEPHONE AND TELEGRAPH (ATT)

Pro	Con
1. None apparent for either company	1. ATT's CSI success is questionable • New/unproven organization • Top management instability • Distracted by hardware business 2. Likely to view NTT more as a threat than partner 3. ATT unable to broaden NTT's experience

Recommendation

Maintain cordial relationship . . .

ELECTRONIC DATA SYSTEMS (EDS)

Pro	Con
1. Very communications oriented	1. Corporate ego
2. Active in many CSI markets	2. Aggressive culture
	3. "Buy American" attitudes

Recommendation

Monitor carefully as CSI learning experience . . . not a good fit for NTT

UNISYS

Pro

1. Understated CSI competitor—strong and diverse skill base

   UNISYS might desire an international telecom partner to complement its strong penetration of international hardware markets

Con

1. Direct work with NTT without a "U. S. CSI vehicle" unlikely

Recommendation

Initiate Discussions

DIGITAL EQUIPMENT CORPORATION (DEC)

Pro	Con
1. None apparent for either company	1. Inflexible negotiator 2. Unlikely NTT relationship without a "U.S. CSI vehicle"

Recommendation

Maintain cordial relations . . .

BOEING COMPUTER SERVICES (BCS)

Pro	Con
1. Good people	1. Questionable corporate commitment to CSI
2. Respect telecom and network technology	2. Having Problems Leveraging Federal SI Experience into Commercial Markets

Recommendation

Continue discussions to explore possibilities as a learning experience, but don't expect much

MARTIN MARIETTA DATA SYSTEMS (MMDS)

Pro	Con
1. Strong CSI technical skill base	1. MMDS has close relationship with Northern Telecom (FTS 2000 partners)
2. Committed to CSI business, but	2. Very "custom research" oriented—looking more for exciting projects than growth

Recommendation

Don't waste time, except for opportunistic situations

SHL SYSTEMHOUSE (SHL)

Pro

1. High-quality company
2. Good reputation
3. Good alliances
4. Might desire a communications relationship(?)
5. Equity ownership concentrated

Con

1. Not well known outside:
   - Canada
   - State & Local Government market

Recommendation

Initiate exploratory discussions . . .

COMPUTER TASK GROUP (CTG)

Pro

1. Highly respected company
2. Excellent software skills
3. Strong Customer relationships (Fortune 500)
4. Wide geographic presence
5. Good alliances
6. NTT could fill communications and funding needs

Con

1. Not a fully seasoned CSI vendor
2. Narrow CSI skill set

Recommendation

Best strategic fit for NTT "U.S. CSI vehicle"—initiate exploratory discussions as soon as practical

EXAMPLE PENETRATION STRATEGY

	ACQUISITION							ALLIANCES			
CSI Capability	NTT		CTG					NET		?	?
Consulting			X								
Design/Integration			X					X			
Project Management			X								
IS Hardware	DG		IBM DEC								
Communication Hdwe	DG							X			
Software Development			X								
Pkg. Applic. Sftwr										X	
Pkg. System Sftwr			X								
Educ. Tng. & Doc.			X								
Network Mgmt.											X
Service & Repair			X								
Totals	?										

D. HOW INPUT CAN ASSIST NTT

1. Preceding CSI Vendor Relationship Recommendations Are Not Exhaustive. Many Other Interesting Possibilities Exist:
   - Amdahl
   - Oracle
   - GEISCO ($400 Million Revenue, Worldwide Network, Application)
   - Sterling Software (EDI)
   - BBN
2. NTT CSI Penetration Issues Will Become Very Complex
   - Many Choices
   - Vendor/Industry Dynamics
   - Multiple Interrelationships
   - Influence of Historic or "Behind the Scenes" Events

HOW INPUT CAN ASSIST NTT

3. Example of Facilitating Key Meetings

CTG:

- Peter Cunningham/David Campbell Relationship
- Campbell's Daughter Lived and Studied in Japan
- Denny White Knows Albert Eisenstat, CTG Board Member
- CTG Has Entertained Acquisition Discussions in Past
- INPUT Has Ideas on How to Structure a Relationship to be Attractive to CTG
- We can Do the Same for Other Companies . . .

INPUT HAS NOW PROVIDED NTT:

- Analysis of Twelve CSI Vertical Markets, Their Component Makeup and 10 Year Forecasts
- Description of CSI Customer Buying Process
- Detailed Evaluation of Eleven Leading CSI Vendors
- Profiles on 9 Specialized CSI Vendors
- Description of Multivendor Integration Technology Sources and Evolution
- Evaluation of NTT Strengths and Weaknesses as a CSI Vendor
- NTT CSI Penetration Strategy Recommendations

TOWARD THE FUTURE. . .

INPUT Would be Honored to Continue Functioning as Sensi to NTT Along its CSI Learning Path

- Set up Discussion Meetings with Key Personnel of Target Companies
- Advise on Meeting Results (Sounding Board)
- Help NTT Plan and Implement Step-By-Step Strategy
- Evaluate Evolving Opportunities
  - Develop Tactical Approaches
  - Markets (Industries & Applications)
  - Products /Services
  - Potential Alliances
  - Technology Assessment
  - Competitor Intelligence
  - Reputation/Image
  - Customer Satisfaction
  - Key Personnel
- Introduce to Specialized Investment Bankers